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# THE VIRGINIA PHARMACY TECHNICIAN EXAM

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## STUDY GUIDE

The Virginia Pharmacy Technician Exam (“Exam”) was developed as an objective means of measuring pharmacy technicians’ knowledge of basic job responsibilities as required by Virginia law. The purpose of this Study Guide is to help pharmacy technicians prepare for the Exam. This Study Guide includes: (1) a description of the major areas covered on the Exam and the relative weight given to each area; (2) a list of key words to help you prepare for the exam; (3) a list of selected statutes and regulations affecting pharmacy technicians in Virginia; (4) sample exam questions and answer key; and (5) information about registering for the Exam.

### 1. TOPICS COVERED ON THE EXAM

The Exam will consist of 50 questions. As with all standardized tests, this Exam contains a few questions that are being pretested for possible use on future exams. Pretesting additional questions is necessary to assure that all items perform properly and that new versions of the Exam can be used in the future. Therefore, 45 of the 50 questions will be scored. All 45 of the questions that will be graded have been pretested to determine their reliability and validity and accepted by an expert panel approved by the Virginia Board of Pharmacy. The pretest items will not be identified for the candidate in order to assure that test statistics are valid. A score of 75% or greater is needed to pass. (In other words, at least 34 of the 45 questions graded must be answered correctly to achieve a passing score.) There will be one hour for the Exam.

As with all standardized tests, there are multiple versions of this Exam. The various versions are carefully equated to assure that all have similar degrees of difficulty.

Questions on the Exam can be divided into 16 categories as outlined below. Because various types of questions are being pretested, the exact number of questions from each category cannot be predicted in advance. Following is a list of the 16 major areas covered on the Exam and educational objectives that you should attempt to master. While this is not represented as an exhaustive list of everything you should know, being able to satisfy these educational objectives and the related concepts will help you prepare for the Exam.

Topic	Number of Questions
<b>Technician Duties and General Information</b> <ul style="list-style-type: none"> <li>Describe the functions a technician may perform.</li> <li>Describe the pharmacy duties that only a pharmacist may perform</li> <li>Explain the importance of maintaining patient confidentiality.</li> <li>Identify the federal and state agencies and regulations affecting pharmacy.</li> </ul>	4 or 5
<b>Dosage Forms</b> <ul style="list-style-type: none"> <li>Identify the various types of medication dosage forms.</li> </ul>	3 or 4
<b>Prescription Containers and Closures</b> <ul style="list-style-type: none"> <li>Compare and contrast the various types of prescription containers.</li> <li>Describe the requirements for using child-resistant containers.</li> </ul>	2 or 3
<b>Generic Substitution</b> <ul style="list-style-type: none"> <li>Understand the state's law regarding generic substitution.</li> </ul>	3 or 4
<b>Information on Prescription Stock Bottle Labels</b> <ul style="list-style-type: none"> <li>Describe the information found on stock bottle labels and how to use it.</li> <li>Describe appropriate strategies for avoiding mix-ups among easily-confused products.</li> </ul>	2 or 3
<b>Controlled Substances</b> <ul style="list-style-type: none"> <li>Differentiate among the various controlled substances schedules and rules for filing controlled-substance prescriptions.</li> <li>Understand the rules and regulations governing refills, partial refills, and transfers of controlled substances.</li> <li>Follow the correct procedures for handling Schedule V sales.</li> </ul>	3 or 4
<b>Prescribers</b> <ul style="list-style-type: none"> <li>Identify the professions that may prescribe medications and any limitations on their prescribing authority.</li> </ul>	2 or 3

Topic	Number of Questions
<b>Receiving Prescriptions</b> <ul style="list-style-type: none"> <li>List the information required on completed prescription forms.</li> <li>Describe the requirements for prescriptions transmitted orally, by facsimile, and transferred among pharmacies.</li> </ul>	3 or 4
<b>Interpreting Directions for Use</b> <ul style="list-style-type: none"> <li>Correctly translate prescribers' abbreviations and symbols into directions for prescription labels</li> </ul>	4 or 5
<b>Calculations</b> <ul style="list-style-type: none"> <li>Use the four systems of measurement used in pharmacies.</li> <li>Calculate prescription quantities and days supply.</li> <li>Calculate the proper doses of medications.</li> </ul>	3 or 4
<b>Patient Interaction</b> <ul style="list-style-type: none"> <li>Communicate patients' telephone requests to pharmacists.</li> <li>Recognize the types telephone calls a technician cannot handle.</li> </ul>	4 or 5
<b>Federal Privacy Requirements</b> <ul style="list-style-type: none"> <li>Understand the main concepts of the federal privacy rules that impact the technician's role.</li> <li>Describe certain procedures that must be followed during the dispensing process to comply with the privacy regulations.</li> <li>Communicate with patients and healthcare professionals in compliance with the privacy rules.</li> <li>Understand the basic patient rights as described in the privacy regulations that may affect the technician's role.</li> </ul>	2 or 3
<b>The Dispensing Process</b> <ul style="list-style-type: none"> <li>Use correct procedures to dispense prescriptions.</li> <li>Properly label prescriptions.</li> <li>Describe the requirements for refilling prescriptions.</li> <li>File prescriptions properly.</li> </ul>	4 or 5

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Topic	Number of Questions
<b>Alternate Drug Delivery Systems</b> <ul style="list-style-type: none"> <li>Describe the drug-distribution systems in hospitals and long-term care facilities.</li> <li>Follow the proper procedures for repackaging medications.</li> <li>Properly label repackaged medications.</li> <li>Calculate the expiration date for repackaged medications.</li> <li>Use proper procedures for filling and delivering unit-dose carts.</li> </ul>	2 or 3
<b>Sterile Product Compounding</b> <ul style="list-style-type: none"> <li>Recognize differences between sterile product prescriptions and other types of prescriptions.</li> <li>Use correct procedures to maintain the sterile product compounding environment.</li> <li>Label sterile product prescriptions accurately.</li> <li>Comply with the Virginia Board of Pharmacy's regulations related to compounding of sterile pharmaceutical products.</li> </ul>	2 or 3
<b>Most Frequently Prescribed Medications</b> <ul style="list-style-type: none"> <li>Match the generic and trade names of the top 50 drug products as published in <i>Pharmacy Times</i>.<sup>*</sup> A list of products is also available on the Institute for the Advancement of Community Pharmacy website <a href="http://www.advancepharmacy.org">www.advancepharmacy.org</a>.</li> </ul>	2 or 3
<b>TOTAL QUESTIONS</b>	<b>50</b>

<sup>\*</sup>Pharmacy Times -Top 200 of 2002, Published in April 2003 issue <http://www.pharmacytimes.com/article.cfm?ID=338>

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## 2. KEY WORDS

Following is a list of key words that you should know for each of the first 15 major areas listed above. While this is not represented as an exhaustive list of every term you should know, knowing each of these terms and the related concepts help you prepare for the Exam. You may find it helpful to make a list of definitions for words and terminology that may be new to you.

### Technician Duties and General Information

Confidentiality	Food and Drug Administration (FDA)
Consumer Product Safety Commission (CPSC)	Over the counter (OTC) drugs
Controlled Substances Act (CSA)	Pharmacy security
Drug Enforcement Administration (DEA)	State Board of Pharmacy
	Technician duties

### Dosage Forms

Aerosols	Ointments
Capsules	Ophthalmic preparations
Chewable tablets	Otic preparations
Controlled-released products	Parenteral medications
Creams	Reconstituting
Dosage forms	Solutions
Elixirs	Sublingual tablets
Emulsions	Suppositories
Enteric-coated tablets	Suspensions
Gels	Syrups
Lotions	Transdermal patches

### Prescription Containers and Closures

Applicator bottles	Closures
Child-resistant caps	Dropper bottles

### Generic Substitution

Brand-name drugs	Generic drugs
Dispense as written	Multiple-source drugs

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## Information on Prescription Stock Bottle Labels

Controlled substance mark	Lot number
Expiration date	National Drug Code (NDC) number
Prescription-only symbol (R <sub>x</sub> )	Stock bottle label
Legend Statement	

## Controlled Substances

DEA number	Schedule IV (C-IV)
Emergency prescriptions	Schedule V (C-V)
Filing prescription forms	Schedule VI (C-VI)
Partial filling	Schedule V records log
Refilling prescriptions	Storing prescription stock
Schedule I (C-I)	Transfer warning statement
Schedule II (C-II)	Transferring medications
Schedule III (C-III)	Transferring prescriptions

## Prescribers

Dentist (DDS or DMD)	Physician (MD)
Nurse practitioner (NP)	Physician assistant (PA)
Optometrist (OD)	Podiatrist (DPM)
Osteopathic physician (DO)	Veterinarian (DVM)

## Receiving Prescriptions

Facsimile prescriptions	Transferred prescriptions
Oral Prescriptions	

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## Interpreting Directions for Use

#	disp	NR	Rx
℥	DTD	od	℥
℥	EC	oj	SA
aa or āā	el or elix	ophth	SC, subQ, or SQ
ac	expect	os	Sig
ad	fl	otic	SL
ad lib	fl oz	ou	SOB
aff	g or gm	oz	sol
AM	gr	p	SR
ANX	gtt(s)	pc	ss or ss̄
app	h, hr or °	pc & hs	stat
aq	HA	ped	supp
aq	HBP	PM	susp
as	hs	po	syr
ASAP	IM	pr	T or tbsp
au	IV	prn	t or tsp
BC	kg	pulv	tab(s)
bid	L	q	tid
BP	LA	qd	tinc
c or c̄	loc	qh	TR
cap(s)	lot	q4h	UD or ut dict
cc	mcg or ?g	qhs	ung or oint
cpd or cmpd	mEq	qid	vag
cr	mg	qod	w or wk
d	ml	qs ad	
DAW	NKA	Qty	
dis	noc	rect or rec	

## Calculations

Apothecary system	Kilogram (kg)
Avoirdupois system	Liter (L)
Cubic centimeter (cc)	Metric system
Dram (dr or ℥)	Microgram (mcg)
Fluid dram ( ℥ )	Milligram (mg)
Fluid ounce (fl oz or ℥)	Milliliter (ml)
Gallon (gal)	Ounce (oz)
Grain (gr)	Pint (pt)
Gram (g)	Quart (qt)
Household measures	

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## **Patient Interaction**

Calls that technicians can handle

Calls that technicians cannot handle

## **Federal Privacy Requirements**

Acknowledgement signature  
Covered entity  
Department of Health and Human  
Services  
Electronic signature capture  
Health Insurance Portability and  
Accountability Act (HIPAA)

Minimum necessary rule  
Minor  
Notice of privacy practices  
Privacy officer  
Protected health information

## **The Dispensing Process**

Automatic counting machines  
Auxiliary labels  
Computer checks  
Conical graduate  
Contraindications  
Counting trays  
Daily log  
Distilled water  
Drug interactions  
Gelatin capsules  
Graduated cylinder  
Hypodermic needle and syringe log  
Label requirements

Medication history  
Meniscus  
NDC number  
Over-the-counter (OTC) medications  
Patient profiles  
Prescription form requirements  
Prescription history  
PRN refills  
Reconstituting powders  
Reconstituting tube  
Refill regulations  
Schedule V sales record log

## **Alternative Drug Distribution Systems**

24-hour exchange  
7-day exchange  
Back-up dose  
Blister pack  
Compliance aids  
Dosage spoon  
Dropper  
Long-term care facility (LTCF)  
Lot or control number

Medication cart  
Patient drawer or tray  
Punch card  
Repackaging  
Returning unused medication  
Unit-dose system  
USP-NF Class B packaging materials  
USP-NF Class C packaging materials



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## **Sterile Product Compounding**

Ampule	Intravenous (IV)
Aseptic technique	Labeling requirements
Biological safety cabinet	Large-volume parenteral
Biomedical waste disposal	Multiple-dose vial
Chemotherapy (cytotoxic drugs)	Parenteral medications
Clean room	Piggyback
Compounding	Route of administration
Dextrose 5% in water (D5W)	Sharps
Diluent	Small-volume parenteral
Filter needle	Sterile drug products
High efficiency particulate air (HEPA) filter	Sterile product risk levels
Horizontal-laminar flow hood	Subcutaneous (SubQ, SQ or SC)
Intramuscular (IM)	Total parenteral nutrition (TPN)
	Vertical laminar-flow hood

## **3. SELECTED STATUTES AND REGULATIONS**

Following is a list of selected statutes and regulations that you should know for the Exam. This should not be considered to be a comprehensive list of all statutes and regulations that you should know as a pharmacy technician. Explanations of these statutes and regulations should be a part of the various Board-approved training programs. If you want, you may obtain the text for each of these statutes and regulations from the Virginia Board of Pharmacy's website ([www.dhp.state.va.us/pharmacy](http://www.dhp.state.va.us/pharmacy)).

### **Regulations**

- 18VAC 110-20-170 – Required minimum equipment
- 18VAC 110-20-200B – Storage of drugs, devices, and controlled paraphernalia
- 18VAC 110-20-240 – Manner of maintaining record, prescriptions, inventory records
- 18VAC 110-20-255 – Other dispensing records
- 18VAC 110-20-270 – Dispensing of prescriptions, acts restricted to pharmacists; certification of completed prescriptions
- 18VAC 110-20-275 – Delivery of dispensed prescriptions
- 18VAC 110-20-280 – Transmission of a prescription by facsimile machine
- 18 VAC 110-20-285 – Electronic Transmission of prescriptions from prescriber to pharmacy
- 18VAC 110-20-290 – Dispensing of Schedule II drugs
- 18VAC 110-20-320 – Refilling of Schedule III through VI prescriptions
- 18VAC 110-20-330 – Labeling of prescriptions as to content and quantity
- 18VAC 110-20-350 – Special packaging

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18VAC 110-20-355 - Pharmacy repackaging of drugs; records required; labeling requirements  
18VAC 110-20-360 - Issuing a copy of a prescription that can be refilled  
18VAC 110-20-370 — Issuing a copy of a prescription that cannot be refilled  
18VAC 110-20-400 - Returning of drugs and devices  
18VAC 110-20-411-416 - Compounding sterile pharmaceutical products

**Statutes**

§ 54.1-2952.1 - Prescription of certain controlled substances and devices by physician assistant  
§ 54.1-2957.01 — Prescription of certain controlled substances and devices by nurse practitioners  
§ 54.1-3320 - Acts restricted to pharmacists  
§ 54.1-3404 - Persons required to keep records of drugs; contents and form of record  
§ 54.1-3408 - Professional use by practitioners  
§ 54.1-3408.03 - Dispensing of therapeutically equivalent drug products  
§ 54.1-3408.01 - Requirements for prescriptions  
§ 54.1-3410 - When pharmacist may sell and dispense drugs  
§ 54.1-3410.2 - Compounding; pharmacists; authority to compound under certain conditions; labeling and record maintenance requirements  
§ 54.1-3411 - When prescriptions may be refilled  
§ 54.1-3412 - Date of dispensing; initials of pharmacist; automated data processing system  
§ 54.1-3416 - No prescriptions for preparations listed pursuant to Schedule V  
§ 54.1-3427 - Dispensing drugs without safety closure container  
§ 54.1-3467 - Distribution of hypodermic needles or syringes, gelatin capsules, quinine or any of its salts  
§ 54.1-3468 - Conditions to dispense device, item ,or substance; records

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#### 4. SAMPLE EXAM QUESTIONS

The following examples illustrate some of the types of questions that are included in the Exam. These examples do not represent a sample test nor do they indicate the relative weight given to various topics covered in the Exam.

1. Functions that technicians are generally allowed to perform include
  - a. receiving oral prescriptions from prescribers.
  - b. telling patients how to use their medication.
  - c. receiving refill request from patients over the phone.
  - d. recommend over-the counter medications.
2. Sublingual tablets are
  - a. intended to be chewed before swallowing.
  - b. placed under the tongue.
  - c. placed in the area between the cheek and gums.
  - d. coated to prevent them from dissolving in the stomach.
  - e. powdered material mixed with a sticky liquid, such as sugar syrup, and rolled into a small round pill.
3. If an emergency prescription is received by telephone for a Schedule II drug, the prescriber must provide a written, signed prescription within
  - a. 2 days.
  - b. 3 days.
  - c. 4 days.
  - d. 7 days.
  - e. 10 days.
4. In which controlled substance schedule is Tylenol® with Codeine (acetaminophen/codeine) classified?
  - a. II
  - b. III
  - c. IV
  - d. V
  - e. VI.
5. A person using the designation “DDS” may prescribe medication used to treat
  - a. back pain.
  - b. athlete’s foot.
  - c. eye infections.
  - d. toothaches.
  - e. two or more of the above.

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6. All the following are required to be on a prescription EXCEPT
- patient's date of birth.
  - patient's name.
  - medication name.
  - directions for use.
  - prescriber's name.
7. For the following question, write out the directions as you would put them on the prescription label:
- gtts ii ad tid UD
8. When written on a prescription blank, the letters "ad" stand for
- as directed.
  - up to.
  - distilled water.
  - before dinner.
  - after dinner.
9. A formula for 1 L of a liquid pharmaceutical calls for 0.25 grams of methylparaben, a preservative. Approximately, how many mg of this preservative is needed to make 1 pint of the liquid?
10. Rx: Proventil® Syrup  
Sig: ii tsp qid  
Disp. 8 oz
- How long many day's supply will be dispensed?
- 2 days
  - 4 days
  - 6 days
  - 12 days
  - none of the above
11. Pharmacy computer systems perform a number of checks to alert pharmacists to potential problems. Which of the following is generally NOT detected by the computer?
- Directions on prescription are incorrect.
  - Patient is allergic to a prescribed medication.
  - Prescription is being refilled too early.
  - Medication causes a problem with patient's disease state.
  - Medication interacts with other medications the patient is taking.

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12. To dispense 100 ml of a liquid medication, you should use
- a 1-ounce bottle.
  - a 2-ounce bottle.
  - a 4-ounce bottle.
  - a 6-ounce bottle.
  - any size of bottle — the size does not matter as long as correct amount of medication is dispensed.
13. Which of the following may be returned to the pharmacy for reuse?
- Medication dispensed in traditional prescription vials.
  - Medications dispensed in unit-dose packages.
  - Controlled substances dispensed in punch cards.
  - None of the above may be returned for reuse.
  - All of the above may be returned for reuse.
14. Which of the following may have access to a patient's confidential information without specific authorization from the patient or the patient's caregiver?
- The pharmacist.
  - The pharmaceutical manufacturer.
  - The employer.
  - Two or more of the above.
  - None of the above.
15. If the manufacturer's label has an expiration date of December 31, 2006 and you repackage the medication into unit-dose containers using USP-NF Class B packaging materials on December 31, 2005, the expiration date that you would put on the unit-dose package is
- December 31, 2006.
  - December 31, 2005.
  - June 30, 2006.
  - March 31, 2006.
  - September 30, 2006.
16. Filter needles are used when
- a laminar-flow hood is not available and medication must be compounded on a tabletop.
  - the medication being compounded is not sterile.
  - medication is withdrawn from an ampule.
  - reconstituting powdered medication in a vial.
  - the needle has been used previously.

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17. Enalapril is the generic name for
- a. Zestril®.
  - b. Norvasc®.
  - c. Hytrin®.
  - d. Prinivil®.
  - e. Vasotec®.

## ANSWERS

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|---|---|
| 1. c  | 9. Approximately 118 mg of preservative |
| 2. b  | 10. c                                   |
| 3. d  | 11. a                                   |
| 4. b  | 12. c                                   |
| 5. d  | 13. b                                   |
| 6. a  | 14. a                                   |
| 7. Instill two drops in right ear three times a day as directed | 15. c                                   |
| 8. b  | 16. c                                   |
|   | 17. e                                   |

## 5. REGISTERING FOR THE EXAM

To register for the Exam, call LaserGrade at 1-800-211-2753. The operator will collect the needed information, give the locations of the nearest LaserGrade Test Centers, and tell you the time slots that are currently available. You will be able to reserve a time slot at that time. The charge for the Exam is \$55 and must be paid by credit card at the time you register. Cancellations must be made at least 24 hours in advance. For more information about LaserGrade, you may find their website at [www.lasergrade.com](http://www.lasergrade.com).

If you require a special testing accommodation under the *Americans with Disabilities Act* (ADA), please call the Virginia Board of Pharmacy at 804-662-991. Any requested accommodations due to disabilities must be made directly to the board with supporting documentation from the physician who has diagnosed the disability. If the request is approved by the board, reasonable accommodations will be made at no additional cost.